ANNUAL OCCUPATIONAL SAFETY AND HEALTH REPORT

OF THE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Reporting Period: 2000

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ANNUAL REPORT ON OCCUPATIONAL SAFETY AND HEALTH

Fiscal Year:	2000
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Component Name:	Headquarters
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1.a. Use agency injury/illness data to display the annual statistics for fatalities and lost time disabilities:

NASA had one fatality, a motorcycle accident, during FY 2000. The accident occurred off NASA property while the employee was traveling to a work-related training class within two miles of the installation's main gate. Previous to this, NASA has experienced no occupational fatality since 1986.

NASA continues to achieve one of the lowest injury/illness rates in the Federal sector. A review of Federal safety performance data indicates that NASA consistently rates in the best top three Federal Agencies with respect to best lost-time injury rate performance.

Specific NASA performance metrics for FY 2000 reflects a compensable lost time injury/illness frequency rate of 0.41 per 200,000 hours.

The trend for NASA Workers' Compensation cost has also been relatively stable. For the past six years those costs have been as follows:

FY 1995 $7.3M	FY 1997 $7.1M	FY 1999 $6.2M
FY 1096 $6.8M	FY 1998 $7.3M	FY 2000 $6.4M

Significant case tracking and case management efforts continued into FY 2000. NASA utilized the Veterans Administration Workers' Compensation Data Management System and the Department of Labor Agency Query System to provide real time OWCP claims status to NASA Center personnel involved with claims management. Special case management focus is placed on Centers with high Workers' Compensation costs.

1.b. Use Agency data to display the most recent OWCP charge back and COP costs:

Item 1.a above delineates the past five years of OWCP costs. Continuation of pay (COP) costs for NASA is as follows:

FY	COP Cases	COP Costs
FY 1998	95	$101,850
FY 1999	58	$97,217
FY 2000	74	$116,245

Despite the increase in number of COP cases, the average per capita dollars for COP cases fell slightly from an average of $1676 in FY 1999 to $1570 in FY 2000. Post surgical complications, in a single case, added to the accumulated COP costs.

1.c. Use Agency accident or incident reporting to explain any significant trends or major causes or sources of fatalities and lost time disabilities, which occurred last year:

NASA had one fatality, a motorcycle accident, during FY 2000. The accident occurred off of NASA property while the employee was traveling to a work-related training class within two miles of the installation's main gate. Speed was thought to be a factor as the individual hit a curb while entering the man throughway from a yield access road. The operator wearing a protective helmet was ejected over the handlebars of the motorcycle and sustained fatal injuries. Previous to this, NASA has experienced no occupational fatality since 1986.

Unsafe acts of humans continue to be the primary cause of reportable mishaps. The top four definitive groupings of causes for reportable injuries and illnesses at NASA include the following:

1. Slips, trips, and falls 61%
2. Other miscellaneous 25%*
3. Lifting and moving operations 8%
4. Bumped into/struck by 6%

*Note this includes diverse activity such as insect bites, injury from, stretching, lack of attention, and material failure, etc.

2. Describe safety and occupational health program accomplishments and initiatives implemented last fiscal year to control the trends and major causes of fatalities and lost time disabilities, and to improve your overall safety and occupational health program and to work toward the Federal Worker 2000 Presidential Initiative goals:

The NASA Administrator is the motivational leader and spokesperson for the agency safety program as he enlists all to follow safe operations.

The NASA Administrator has carried the message of world-class safety performance to all levels of NASA, its contractors, Congress, our international partners and in his outreach activities. He has made it clear that NASA will not compromise the safety of the public, its astronauts and pilots, the NASA workforce, or high value equipment and property.

NASA continued implementation of an even more vigorous safety program at all sites to enhance even further the theme of line management accountability for safety and health. The NASA Agency Safety Initiative (ASI) was continued in FY 2000 with the goal of moving NASA from the among the best Federal Agency safety and health program to a world-class safety and health program. Senior management aggressively pursued the ASI in FY 2000 with unprecedented leadership involvement. Mr. Goldin directed the review of all NASA contracts to assure safety and health provisions were incorporated to assure the provisions of a strengthened NASA supplement to Federal Acquisition Regulations

The NASA Administrator in continuing the ASI initiative he started in safety in February 1999 added a Health Initiative in FY 2000. The Health and Safety Initiative emphasized topics pertinent to the employees, and goals of NASA. The Agency Administrator

communicated to employees in the latest Strategic Plan for NASA that health and safety are NASA's highest core values.

A NASA agency–wide safety survey was conducted at all NASA field centers during FY 2000. The survey used the NASA-developed Performance Evaluation Profile (PEP) survey system to evaluate the Occupational Safety and Health programs and system safety programs within the agency. For the Occupational Safety and Health survey, 5606 civil service employees and 905 civil service managers participated. The system safety survey involved 1474 civil service employees and 274 managers.

NASA compared the results from FY 2000 to those of FY1999 PEP Occupational Safety and Health Survey against four core process elements: management leadership and employee participation, work site hazard analysis, hazard prevention and control, and safety and health training. The survey disclosed that all NASA Field Centers are diligently working to improve their safety and health programs, with FY 2000 results significantly higher in Voluntary Protection Program (VPP) criteria than the previous survey in all categories. This accomplishment signals a marked improvement in NASA Safety and Health programs as all NASA Centers are at or significantly above the level of a "Basic Safety Program" and have the scores to pursue a VPP effort.

At the beginning of FY2000, the Administrator personally discussed health and safety topics with senior management. Through Eighteen (18) discussion topics, the Administrator voiced his personal concerns for maintaining successful programs in that area and challenges his management team to conduct vulnerability assessments in their facilities and programs for further improvement. Following these meetings, Center management shared the information with employees at their Centers and identified activities at the Center level in support of these topics.

A new office of Chief Health and Medical Officer, reporting directly to the Administrator, was created in FY2000 to emphasize the importance of Health and Safety at NASA.

The FY 2000 campaign for world-class safety continued the theme titled "Mission success starts with safety" and remains focused around the primary elements listed below.

- Management commitment
- Safety and health policy
- Planning and performance expectations/measurements
- Safety and health training, education and awareness
- Program assessment methodology
- Functional management reviews
- External outreach
- System/equipment safety upgrades

To date, two NASA Centers, the Langley Research Center, and the Johnson Space Center have achieved OSHA VPP Star Certification status. All other Space Centers have aggressively pursued preliminary OSHA VPP Star certification activity in FY 2000; and will continue to do so.

The NASA Solar Safe Program was officially kicked off in February of 2000 at an event held at the Kennedy Space Center. The program outcome included Centers adjusting

work schedules to minimize the amount of sun exposure an employee received, offering full body skin examinations and training programs for employees. The NASA Occupational Health Program explored the available technology for the early detection and prevention of skin cancer. The results of a workshop entitled, “Skin Cancer Screening and Early Detection: Pursuit of New Technology” were published. Presentation of the NASA Solar Safe Program included the American Academy of Dermatology.

Two occupational health and safety conferences were held during FY 2000, a conference on Skin Cancer Screening and Early Detection, and a joint Health and Safety Managers conference.

A major audit and self-evaluation process was continued in FY 2000. The course of action included reviews of three NASA Centers for occupational health and safety, in addition to Operational Engineering Board reviews, Center VPP preparation reviews, and industry best practices. This included such guidelines as the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), the Accreditation Association of Ambulatory Health Care (AAAHC), and the National Committee for Quality Assurance (NCQA). Additionally a NASA-internal, occupational health program audit tool was developed to assure compliance to OSHA and best practices, as well as to provide metrics on individual Center and overall Agency improvements in occupational health and safety.

A NASA Policy Guidance (NPG) document on Hearing Conservation was drafted, and is under Agency review. The NPG establishes minimum requirements for an Agency-wide Hearing Conservation Program and is intended to prevent noise induced hearing loss. It is applicable to all NASA employees and NASA-controlled, Government-owned facilities including all ground-based and aircraft operations. The full intent of this NPG will be incorporated into any contract under which contractor employees are assigned to work in hazardous or potential hazardous noise areas on NASA sites. All personnel who are routinely exposed to noise at a level equal to or exceeding 80 dBA 8-hour time-weighted average TWA – action level, or an equivalent TWA of 85 dBA for 8 hours for any one day will be identified and placed in a medical monitoring program and required to wear personal hearing protection.

Numerous safety policy documents were finalized by NASA such as: NASA NPG 8715.1 NASA Safety Manual, NPG 8715.2 NASA Emergency Preparedness Plan Procedures and Guidelines, NPG 8621.1 NASA Procedures and Guidelines for Mishap Reporting, Investigating, and Record Keeping, and NASA STD- 8719.11 Safety Standard for Fire Protection which added to the policy for the prevention of mishaps.

Another major policy enhancement was the NASA Contractor Safety Requirements with a Risk-based Acquisition Management initiative to re-focus on risk as a core acquisition concern. This initiative is being implemented through training to NASA and to contractor personnel, consultation to NASA projects and programs and updated policy and guidance through revisions to several of NASA’s internal processes and guidelines.

NASA continued contractor medical evacuation services for its employees who are stationed in remote locations and foreign countries. The purpose of the service is to quickly bring any NASA continued contractor medical evacuation services for its employees who are stationed in employee in urgent need of medical attention, to a location in the United States or Europe where quality medical care can be provided.

A Guideline for Automated External Defibrillator (AED) programs at NASA Centers was promulgated before the activity was required by regulations. AEDs are currently the most effective response that can be taken by lay people to deter sudden cardiac arrest (SCA). A number of Centers made significant investments in the number of AEDs available. Currently, there are over 45 AEDs deployed throughout the Agency.

During FY 2000, the Nuclear Regulatory Commission (NRC) and internal audit teams audited Center's Radiation Safety Programs. The NRC found the programs met or exceeded compliance with NRC license requirements.

NASA has retained its Inter-Agency agreement with the Food and Drug Administration (FDA) to facilitate expert examination and calibration of all medical X-ray machines. The agreement has proven to be a mutually beneficial one where NASA benefits from the FDA's expertise and the FDA is compensated for their services.

Agency health and safety programs extend to all NASA Centers. Marshall Space Flight Center (MSFC) Occupational Medicine and Environmental Health program are representative of each of the Agency's Centers. All Centers established or continued their own Center-level web sites during FY 2000. The Centers' websites have been augmented by Center-specific health and safety information. The sites provide health-related topics, links, and contain databases.

Each organization of NASA conducts an annual Health and Safety Stand-down day. As an example of one of our Centers, MSFC's had an Annual Health and Fitness Expos and Safety Day Stand-downs. These increase employee safety and health awareness. The "stand down" from normal duties consisted of health and safety presentations from various personalities, exhibits, and demonstrations. Hundreds of volunteers committed many hours to these events.

- As at other Centers, the start-up of the VPP effort at MSFC provided another catalyst for employees' increased participation in the Center's Safety and Health program. Committees were formed to assess the requirements of VPP versus the components of Center's existing programs. Gaps were identified and organizations began working to accomplish the needed changes.
- Marshall, as other Centers, has a weekly newsletter on their internal homepage, Safety, Health and Environmental (SHE) Highlights that contains pertinent SHE items of interest for the week. SHE is also handed out at each weekly senior staff meeting.
- Many Centers have Health and Safety topics of the month. Marshall's "SHE Topic of the Month," newsletter is posted monthly on the internal homepage. This newsletter provides emphasis on a specific SHE topic for that month. The SHE Topic of the Month also provides several resources for the information on that topic along with a SHE calendar of events for that month.
- Overall employee participation in safety activities at MSFC were enhanced and broadened with the creation of the Marshall Safety and Health Action Team (MSAT) and the Contractor Safety Forum.
- The MSAT group introduced the Safety Bowl, which was an intra-MSFC competition on employees' knowledge of a variety of SHE topics. The Team was comprised of volunteer employees from each directorate. The competition began earlier in the year and ended in the championship series on Safety Day. This event proved to be very

successful. The winning directorate was provided with a trophy. The trophy will be presented to the winner each year.

- Marshall's annual "Walk for the Health of It" drew a record level of participation. A competition existed between the directorates, and trophies were provided to the directorate having the largest number of participants and to the directorate having the greatest percentage of participants.

2a. Successes and failures resulting from implementation of initiatives:

NASA's Occupational Health Internet web site is an online training and informational resource that is available to all Agency employees and contractor employees. The "hits" on the site have steadily increased over the last few years, and have gone from 3,423 in FY 1998, to 63,867 hits in FY 1999 to 134,236 hits in FY 2000. Hits to the website have more than doubled over the last year. The web site was also enhanced with an occupational health discussion board for physicians, industrial hygienists, and wellness professionals to coordinate ideas and solutions to problems.

Several NASA Centers in FY2000 provided an on-line ergonomic computer workstation evaluation tool for employees. All NASA and contractor employees can assess their own workstations and seek professional help when necessary to correct any ergonomic deficiencies. Evaluation of these Web sites in FY2001 will ascertain the usefulness and ease of such programs.

The NASA Safety Training Center (NSTC) presented 39,828 instructor based classroom hours of training to 3,162 students in 49 safety and health courses in FY 2000. NASA employees were also engaged in taking 70 on-line computer-based safety and mission assurance courses. NASA recognized 956 computer-based training course graduates for FY 2000.

In FY 2000, NASA launched an Agency-wide program called "Solar Safe," to reduce the risk of employee skin cancer from exposure to the sun. The program addressed the increased potential for employees to fall victim to skin cancer from solar exposure because of the Agency's sun-belt locations. The program has provided early intervention in several cases. Early intervention is the key to successful treatment of some skin cancers. Besides awareness, the program emphasized administrative control of exposures, protective clothing and sunscreens. Centers were provided with UV detection cards for each NASA employee. New ways to screen and evaluate lesions were explored in FY2000.

NASA's Safety, Occupational Health Program, and Center Emergency Preparedness Coordinators worked together to increase awareness of the bioterrorism/weapons of mass destruction threat to U.S. Government facilities.

3. Annual OSH plans, goals and objectives, and significant OSH initiatives planned for the coming year(s):

Examples of the specific actions being taken as a result of the continuing NASA Health and Safety Initiative includes of the following actions:

The occupational health and safety audit and self-evaluation process will be continued in FY 2001. Audits are planned for seven NASA Centers for compliance with OSHA, and industry best practice standards. As noted above, best practice standards include the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), the

Accreditation Association of Ambulatory Health Care (AAAHC), and the National Committee for Quality Assurance (NCQA). The newly developed occupational health program audit tool will provide metrics on individual Centers and overall Agency compliance with occupational health and safety requirements. Self-assessment tools for infection control, accreditation, and medication management will be issued. A standard for non-work related preventive health physical examinations, and a Gap analysis to establish this standard will be made.

A NASA wide occupational safety and health conference is planned for February of FY 2001. It will include professional development courses in assessing and managing occupational exposures, and Advanced Cardiac Life Support (ACLS) training re-certification. Conference lecture topics include occupational health program updates, bioterrorism, OSHA recordability, worker's compensation issues, bridging the gap between medicine and occupational health, and an ergonomic panel session discussion. Other sessions will include infection control, use of Automatic External Defibrillators (AED), risk management, back belts, wellness, noise control, hydrazine detection, and VPP relative to NASA initiative.

NASA will be exploring the deployment of additional AEDs for all facilities, and will audit current AED programs.

An update of a NASA Occupational Health Program Handbook was drafted and will be made available in FY 2001 to help promote and maintain the good health of employees, ensure safe work environments, assess program performance, and assure compliance with regulations. The Handbook will address and provide guidance to NASA employees in twelve major occupational health and safety topic areas.

An Occupational Health Program Desktop Resources section of the NASA Occupational Health Program web site is planned. The section, pending approval of the principals, will compliment the Occupational Health Program Handbook, and provide detailed information on the latest available reference materials supporting topics in the handbook. This arrangement will encourage inter-center communications and information exchange.

Policy letter from the Administrator to every NASA senior manager stating the intent for NASA to become a "World Class" safety leader.

Insertion of specific safety requirements into the NASA Strategic Plan and project management and planning policy.

Development of specific safety and health performance criteria for NASA Managers which clearly defines management's commitment.

Aggressively involve Agency senior management review boards (e.g. NASA Health Council, etc.) to communicate and evaluate programmatic and institutional efforts and achievements with respect to safety and health.

Further development of metrics for measuring the effectiveness of the NASA safety and health program.

Procurement strategy will be expanded to assure appropriate safety and health requirements in all NASA procurement actions.

Senior Agency managers safety and health training efforts.

Each NASA Center will continue to have a Safety and Health Program Office responsible for supporting Center line management with their safety responsibilities. Those offices will conduct independent reviews of Center operations to assure compliance with all elements of 29 CFR Part 1960. Each Center's process for inspection and abatement will be reviewed during NASA Headquarters program reviews. This inspection process, aimed at identifying both unsafe conditions and unsafe acts is the primary point of emphasis to address the first four types of injuries listed above.

Early involvement of the safety and health staffs in design and procurement activities, will continue as a key risk management focus area at each NASA site. This effort enables identification of potential safety and health hazards at the earliest possible stage. Center safety and health professionals serve in a review and approval capacity for purchase of hazardous materials, hazardous equipment, personal protective equipment, and other key purchases which are key to controlling hazards.

The NASA Centers utilize ergonomics assessment teams including representatives from industrial hygiene, safety, medical, fitness and line management to help identify potential cumulative trauma and repetitive stress injury potential and to recommend job and equipment modifications.

Each NASA Center will continue to emphasize the need to report unsafe conditions and correct them. To augment those avenues of reporting for any employee wishing to remain anonymous, NASA continues to operate an independent and anonymous NASA Safety Reporting System (NSRS). This effort also includes a strong effort to insure reporting of "close calls" to identify problems needing correction.

Analysis of the cause of mishaps (accidents) within NASA is accomplished via the mishap identification process. NASA has promulgated mishap investigation policies which require specific investigation ranging from the supervisors report of injury listing specific recommendations to prevent re-occurrence, to full mishap investigation boards for the incidents with actual or potential for serious injury or property damage. Those investigation efforts coupled with the inspection activities mentioned above constitute the Agencies primary approach for addressing the causes of injuries and the controlling recurrence.

Injury and illness data represent primary metrics used by NASA management to assess and manage performance. While the safety performance of each NASA Center continues to represent best in class within the Federal sector, the NASA Administrator has set achieving "world class safety" as one of his key goals and is using the mishap rate to gauge progress.

NASA's goal is to have a zero lost time injury rate for its employees. The lost time injury and illness rates serve as one of the top management's evaluation metrics. NASA uses the standard metrics for evaluation of its field Centers including lost time injury and illness rates, frequency of major mishaps, Workers' Compensation rates for each location, etc. Each year safety performance goals are established for each Center. Center performance against those goals as well as Center to Center comparisons is rolled up into an Annual Report given to NASA Senior Management and to the NASA Health Council.

Injury/illness rates have historically been very low. These rates do not suffice as a proactive measure of safety performance. NASA developed a revised senior management performance review process which extends beyond the injury and illness statistics and

which better represents the risk management requirements for Agency, program and project management. The new system is geared more to the maintenance of a safety and health program that meets the core requirements as defined by OSHA:

- Management commitment and employee involvement
- Work-site hazard analysis
- Hazard prevention and controls
- Safety and health training

NASA has conducted an extensive safety and health policy updating process over the past five years. NASA reviews each NASA Center on its performance in safety and health training. These reviews include both an annual self-assessment and a NASA Headquarters review of the Center safety and health training programs.

In addition, this past year the NASA Administrator at Senior Management Council, Human Exploration and Development of Space Meetings, and weekly staff meetings, continues to assure all that safety is NASA's number one priority and to provide definitive agency safety guidance to all.

NASA has continued with an aggressive safety and health training program utilizing a multi-media approach including:

On-site Instructor Based Courses- The local safety and health professionals at each Center present courses to on-site personnel covering the broad range of topics required by OSHA (such as confined space entry, lock-out/tag-out, bloodborne pathogens, hearing protection, respiratory protection, etc.).

NASA Safety Training Center Courses- Each year NASA invests close to $1,000,000 through this Center located at Johnson Space Center for course development and deployment to the NASA Centers. Over 3,000 personnel have attended instructor based safety training presented by the NASA Safety Training Center (NSTC). The NSTC has a course catalogue that identifies 49 safety and health courses that can be given Agency-wide.

Web based Training- NASA Safety and Mission Assurance (SMA) will continue to provide web-based training for all Agency and support contractor managers, program directors, and employees. Over 21,500 NASA and contractor personnel are enrolled in over 90 hours of web based Safety and Mission Assurance training.

Special training contracts – each year NASA identifies specific courses needed Agency wide and contracts for that training. For example this past year NASA provided Indoor Air Quality, Heat Stress and the new American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV), Strength and weaknesses of Risk Assessment, Man Made Mineral Fibers as a Substitute for Asbestos, Pathology of Work Related Muscloskeletal Disorders, Principles of Toxicology, Ethical and Legal Issues in Occupational Health, and Biological and Chemical Warfare training to NASA Center personnel.

OSHA Voluntary Protection Program STAR certification continues to be an area of emphasis and goal for NASA Centers to achieve. In addition to NASA's Langley Research Center (the first Federal facility to achieve VPP STAR status) achieving their Star certification in FY 98, NASA's Johnson Space Center achieved that status in FY 99. All

other NASA Centers are currently planning on entering the VPP program with certification by the end of FY2002.

For the past five years NASA has sponsored a “safety awareness day” at all NASA Centers. The day (or week in some cases) has been set aside for supervisors and employees to dwell on safety training or other safety and health topics concerning the workplace, operations, and flight. This will continue.

An awareness campaign for the confidential NASA Safety Reporting System (NSRS) will continue to ensure the reporting process has been directly advertised to every NASA civil service employee and the leading NASA contractors.

Close Call Reporting will continue to be emphasized. The Agency deems close call programs as critical for proper trend analysis and assessing the work environment for the existence of mishap potential. The reporting of close calls by all NASA civil service employees and contractor personnel is considered mandatory.

NASA Mishap Reporting and Investigating Procedures and Guidelines will be employed to increase emphasis and analysis of root causes in all mishaps and close calls.

NASA’s safety and health web sites will continue to make safety and health information easily available to all. NASA employees now have even better access to regulatory requirements, NASA policy documents covering safety and health programs, training materials, etc.

NASA will continue Federal interagency agreements for support of NASA programs including the Veterans Administration (Workers’ Compensation tracking system), Food and Drug Administration (safety surveys of diagnostic x-ray equipment), GSA (development of web based training programs), etc. Use of subject matter experts from other Federal Agencies has proven to be effective and cost saving.

NASA is confident that by sustaining the efforts and attention we have devoted towards mishap prevention this past year, NASA will move from one of the best in the federal sector to become the best in the world.